CLAIMS

1. A system for providing error correction in an imaging system, said system comprising:

error determination means for determining an amount of error associated with a spot at (x,y) in a binary pattern to be imaged;

determination means for determining the location of a nearest exposed spot at (x_i, y_i) for each spot (x,y); and

dose modification means for modifying an exposure dose at the nearest exposed spot (x_i, y_i) for each spot (x,y).

2. The system as claimed in claim 1, wherein said error determination means includes determining a convolution of the binary pattern to be imaged with a point-spread function.

3. The system as claimed in claim 1, wherein said error determination means includes determining an inverse fast-Fourier transform of a product of a fast-Fourier transform of the binary pattern and a fast-Fourier transform of a point spread function.

4. The system as claimed in claim 1, wherein said error determination means includes determining a thresholding pattern as a function of the exposed pattern.

5. The system as claimed in claim 1, wherein the amount of error associated with the spot (x,y) in the binary pattern to be imaged is provided as a difference between a thresholding pattern and the binary pattern.

6. The system as claimed in claim 1, wherein said system includes repetition means for

iteratively determining the amount of error associated with a spot at (x,y) in the binary pattern to be imaged until the amount of error is not greater than an acceptable amount of error.

7. A system for providing error correction in a lithographic imaging system, said system comprising:

exposed pattern simulation means for simulating an exposed pattern of a binary pattern to be imaged;

thresholding means for determining a thresholding pattern by applying a thresholding function to the exposed pattern;

error determination means for determining an amount of error associated with a spot at (x,y) in a binary pattern to be imaged corresponding to a difference between the thresholding pattern and the binary pattern;

determination means for determining the location of a nearest exposed spot (x_i, y_i) for each spot (x,y); and

dose modification means for modifying an exposure dose at the nearest exposed spot at (x_i, y_i) for each spot at (x,y).

8. The system as claimed in claim 7, wherein said exposed pattern simulation means includes determining a convolution of the binary pattern to be imaged with a point spread function.

9. The system as claimed in claim 7, wherein said exposed pattern simulation means includes determining an inverse fast-Fourier transform of a product of a fast-Fourier transform of

the binary pattern and a fast-Fourier transform of a point spread function.

10. The system as claimed in claim 7, wherein said system includes repetition means for iteratively determining the amount of error associated with a spot at (x,y) in the binary pattern to be imaged until the amount of error is not greater than an acceptable amount of error.

11. A method of providing error correction in an imaging system, said method comprising the steps of:

determining an amount of error associated with a spot at (x,y) in a binary pattern to be imaged;

determining the location of a nearest exposed spot at (x_i, y_i) for each spot at (x,y); and

modifying an exposure dose at the nearest exposed spot at (x_i, y_i) for each spot at (x,y).

12. The method as claimed in claim 11, wherein said step of determining an amount of error associated with a spot at (x,y) in a binary pattern to be imaged includes determining a convolution of the binary pattern to be imaged with a point spread function.

13. The method as claimed in claim 11, wherein said step of determining an amount of error associated with a spot (x,y) in a binary pattern to be imaged includes determining an inverse Fourier transform of a product of a Fourier transform of the binary pattern and a Fourier transform of a point spread function.

14. The method as claimed in claim 11, wherein said step of determining an amount of error associated with a spot at (x,y) in a binary pattern to be imaged includes determining a

thresholding pattern as a function of the exposed pattern.

15. The method as claimed in claim 11, wherein the amount of error associated with the spot (x,y) in the binary pattern to be imaged is provided as a difference between a thresholding pattern and the binary pattern.

16. The method as claimed in claim 11, wherein said method further includes the step of iteratively returning to the step of determining the amount of error associated with a spot at (x,y) in the binary pattern to be imaged until the amount of error is not greater than an acceptable amount of error.

17. A method of providing error correction in a lithographic imaging system, said method comprising the steps of:

simulating an exposed pattern of a binary pattern to be imaged;

determining a thresholding pattern by applying a thresholding function to the exposed pattern;

determining an amount of error associated with a spot at (x,y) in a binary pattern to be imaged corresponding to a difference between the thresholding pattern and the binary pattern;

determining the location of a nearest exposed spot at (x_i, y_i) for each spot at (x,y); and

modifying an exposure dose at the nearest exposed spot at (x_i, y_i) for each spot at (x,y).

18. The method as claimed in claim 17, wherein said step of simulating the exposed pattern of the binary pattern to be imaged includes determining a convolution of the binary pattern to be imaged with a point spread function.

19. The method as claimed in claim 17, wherein said step of simulating the exposed pattern of the binary pattern to be imaged includes determining an inverse Fourier transform of a product of a Fourier transform of the binary pattern and a Fourier transform of a point spread function.

20. The method as claimed in claim 17, wherein said method further includes the step of iteratively returning to the steps of determining a thresholding pattern by applying a thresholding function to the exposed pattern and determining the amount of error associated with a spot at (x,y) in the binary pattern to be imaged until the amount of error is not greater than an acceptable amount of error.